Eelgrass (*Zostera marina*) transplant survival and density trajectories over eight years at a North Puget Sound restoration site

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Annual monitoring of restored eelgrass beds is helping to provide some predictive indication of transplant establishment and long-term density trends in Puget Sound. We have worked with Washington State Ferries since 1996 on an eelgrass restoration project at Whidbey Island's Clinton Ferry Terminal where approximately 320 m2 of existing eelgrass beds were potentially impacted by terminal expansion and rebuilding. Habitat compensation was accomplished by transplanting stockpiled eelgrass into 12 different transplant plots comprising an area of 1,896 m2. Transplanting efforts consistently showed an initial loss of transplanted shoots (48%) during the first year, followed by an increase in year two. By 2004 the "trajectory" of eelgrass density in transplant plots continued its upward trend, with an average per-plot increase of approximately 150% over original planting density. It appears that measures to reduce and eliminate impacts to eelgrass from the ferry terminals and ferry operations, coupled with planting, have resulted in recovery of eelgrass near the terminal. This upward trend suggests that eight years of monitoring data may be inadequate to capture a site's maximum restoration potential, especially with regard to inter-annual climate variability or the indirect benefit of reduced ferry impacts that affect eelgrass growth and survival.